

REMARKS

Claims 9-14, 30-33, and 36-42 are pending. Claims 1-8 and 21-29 are withdrawn, and claims 15-20 and 34-35 are canceled. Claims 38-42 have been added. Claims 30 and 40 are the independent claims. It is believed that no new matter has been added.

I. Interview

Applicant sincerely wishes to thank the Examiner for conducting a telephone interview of the present case.

II. Rejection under 35 U.S.C. §112, first paragraph

Claim 35 was rejected under 35 U.S.C. §112, first paragraph as failing to disclose the limitation “a first user interface signal for sending displayable data to the print engine; and a second user interface signal for receiving user input from the print engine.”

The Examiner requested identification of the sections of the application as filed that teach the limitation. Figure 4 and page 11, lines 5-20 of the application as filed provide support for the limitation. The sections cited are merely examples of support in the application as filed; other sections may likewise provide support. In view of the foregoing, it is respectfully submitted that the limitation as set forth in previously presented claim 35 is fully supported by the application as filed. Regardless, applicant has canceled claim 35. The cancellation of claim 35 in no way indicates acquiescence to the rejection.

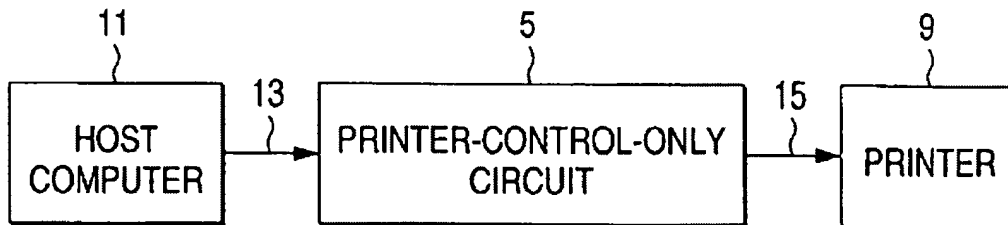
III. Rejections Under 35 U.S.C. § 102(e)

Claims 30-37 were rejected under 35 U.S.C. §102(e) as being anticipated by Terashima et al. (U.S. Patent No. 6,538,762) (hereinafter referred to as “the Terashima reference”). Claims 30-37 were also rejected under 35 U.S.C. §102(e) as being anticipated by Lin (U.S. Patent No. 6,753,903) (hereinafter referred to as “the Lin reference”).

The Office Action states that the Terashima reference discloses a single cable that includes a printer controller, citing Fig. 2, elements 5, 13, and 15, and col. 4, lines 1-27.

Fig. 2 of the Terashima reference is reproduced below:

FIG. 2



The Office Action interprets elements 5 (control circuit), 13 (parallel cable) and 15 (parallel cable) as a single cable, with the control circuit 5 within the single cable. This interpretation is contrary to the Terashima reference, which teaches that the control circuit 5 is external to any cable. First, Fig. 2 in the Terashima reference depicts the control circuit 5, the parallel cable 13 and the parallel cable 15 as separate elements, with parallel cable 13 transmitting data from the host computer to the control circuit 5, and parallel cable 15 transmitting data from the control circuit 5 to the printer 9. See also col. 4, lines 33-35. Second, the Terashima reference teaches that the control circuit 5 is “an **external** circuit” to any of the other elements, including parallel cable 13 and parallel cable 15. See col. 4, lines 29-35 (emphasis added).

The Office Action further states that the Lin reference discloses a single cable that includes a printer controller, citing Fig. 1, elements 1, 4 and 5, and col. 1, lines 45-67.

Fig. 1 of the Lin reference is reproduced below:

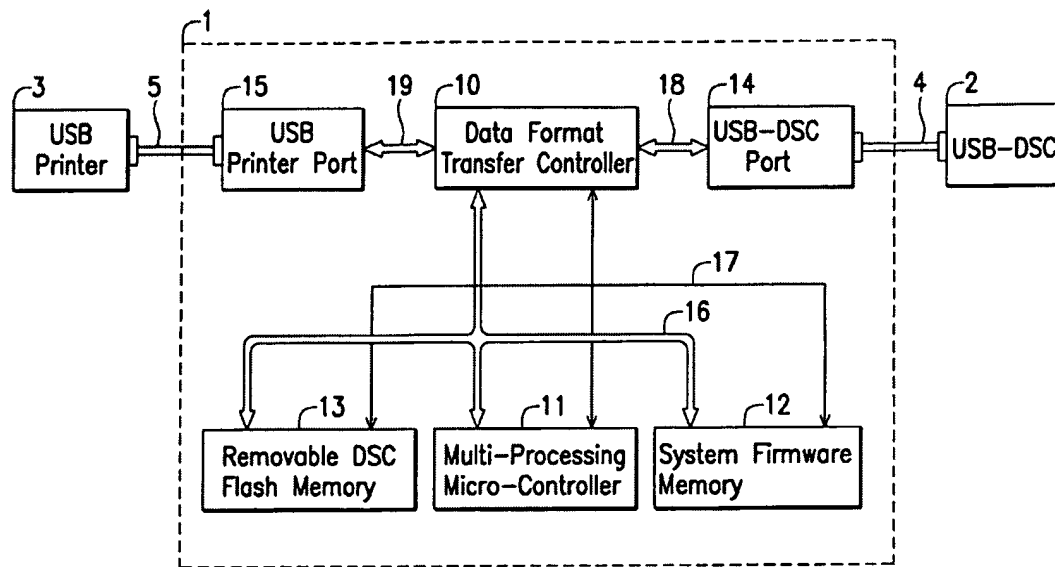


FIG. 1

The Office Action interprets elements 1 (adaptor), 4 (USB cable) and 5 (USB cable) as a single cable, with the adaptor 1 within the single cable. Similar to the interpretation for the Terashima reference, this interpretation is contrary to the teachings of the Lin reference, which teaches that the adaptor 1 is external to any cable. First, Fig. 1 in the Lin reference depicts the adaptor 1, the USB cable 4 and the USB cable 5 as separate elements. Second, the Lin reference teaches that the adaptor 1 interfaces with the digital still camera DSC 2 via a first cable (USB cable 4) and with the printer via a second cable (USB cable 5). Col. 2, lines 53-55; col. 4, lines 57-64.

To highlight the differences, claim 30 is amended to recite a “single continuous cable,” with the “printer controller disposed within the single continuous cable” and “connected to the first connector and the second connector internal to the cable.” See also claim 40. The Terashima and Lin references fail to teach or even suggest a printer controller that is within a single continuous cable. Rather, the control circuit 5 in Terashima and the adaptor 1 in Lin are designed to be separate elements from the cables, connectable to the host computer and printer via a multitude of cables. Further, the invention as claimed is a practical replacement for the traditional connection between a host computer and a printer. In a traditional connection, there is a single cable that connects the host computer to the printer. The present invention achieves the benefits of

removing the printer controller from either the host computer or the printer, and still maintains this traditional connection (via the single continuous cable). Therefore, the present invention as claimed is a practical replacement to the traditional printer connection. In contrast, the configurations taught in the Terashima and Lin references are not a feasible replacement. Both require multiple cables, multiple connections, and unnecessary complexity. Therefore, independent claims 30 and 40 are patentable over the cited references.

IV. Rejections Under 35 U.S.C. § 103(a)

Claims 9-14 were rejected under 35 U.S.C. §103(a) as being obvious over Terashima in view of Hirst et al. (U.S. Patent No. 5,930,553) (hereinafter referred to as “the Hirst reference”). The Office Action states that the Terashima reference teaches the claimed invention except for the recited dynamic loading program. The Office Action relies on the Hirst reference for the teaching, citing col. 2, lines 32-54; col. 3, lines 34-56; col. 4, lines 52-62; and col. 6, lines 12-15.

The Hirst reference teaches including a printer controller 13 in a printer 11 or in a host computer 20. Col. 4, line 45 – col. 5, line 6. The printer controller includes software that is stored in non-volatile memory. See Fig. 1. The Hirst reference teaches that the software in the printer controller may be updated via a memory associated with a consumable for the printer (such as toner, ink, ribbon). When the consumable is replaced on the printer (such as replacing the toner cartridge), the memory on the consumable that contains the updated software is downloaded onto the non-volatile memory in the printer controller.

Previously presented claims 9-14 and the newly presented claims are not obvious in view of the combination of the Terashima and Hirst references. As an initial matter, Applicant questions the combination of the Terashima and Hirst references. Specifically, one of skill in the art would not be motivated to combine the Terashima reference, which teaches disposing the control circuit 5 outside of the printer 9 and the host computer 11, with the Hirst reference, which teaches the exact opposite configuration – disposing the printer controller 13 within the printer 11 or the host computer 20. Even if combined, however, the combination still fails to teach the invention as claimed. For example,

claim 38 recites that the “the printer controller program stored in a memory consisting of volatile memory.” As discussed in the present application, one aspect of the invention is storing the printer controller program only in volatile memory. In this way, the non-volatile memory within the cable may be much smaller, making the system easier to implement within a single cable. See pg. 9, lines 1-6 of application. “When the printer controller 140 is powered-down, there is no resident printer controller program therein.” Pg. 9, lines 5-6. This is in contrast to both the Terashima and Hirst references which store the printer controller program in a non-volatile memory. See Fig. 5 of the Terashima reference; Fig. 1 of the Hirst reference. Because of this, the Terashima and Hirst references are more difficult to implement and more difficult to integrate within a single continuous cable.

As another example, claim 9 recites “a dynamic loading program for causing the processor to automatically manage download of the printer controller program from a source to the volatile memory.” Because the printer controller program is stored only in volatile memory, the dynamic loading program manages the automatic download of the printer controller program, such as determining whether the printer controller program is valid, corrupted, or non-existent. See claims 10, 13, and 42. Neither the Terashima nor the Hirst references teach this type of automatic download. In view of the foregoing, it is respectfully requested that the claim rejections be withdrawn.

V. Summary

It is respectfully asserted that the claims properly define the invention and that the invention is both novel and non-obvious. Allowance of the present claims is earnestly solicited.

Should the Examiner wish to discuss any of the above submissions in more detail, the Examiner is requested to please contact the undersigned at the telephone number listed below.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Amir N. Penn", written over a horizontal line.

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